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Endophragmiella jiulingensis sp. nov. and two new records from China

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Abstract—A new species, collected on dead branches of an unidentified broadleaf tree from southern China, is described and illustrated. *Endophragmiella jiulingensis* is distinguished by branched conidiophores producing cylindrical, smooth, 0-septate, 6–8 × 4.5–5.3 µm conidia. *Botryomonilia scheeleae* and *Camposporium ramosum* are newly recorded from China.

Key words—anamorphic fungi, taxonomy

Introduction

The genus *Endophragmiella* was erected by Sutton (1973) for two species, *E. pallescens* B. Sutton, the type species, and *E. canadensis* (Ellis & Everh.) B. Sutton. Subsequently, the genus was emended by Hughes (1979), who gave a very detailed account of conidiogenesis and generic concepts. *Endophragmiella* is mainly characterized by solitary acrogenous conidia seceding rhexolytically from monoblastic, integrated, terminal, determinate or percurrently extending conidiogenous cells (Sutton 1973, Ellis 1976, Hughes 1979, Wu & Zhuang 2005). At present, over 90 species are accepted in the genus (Ma et al. 2011, Ren et al. 2011, MycoBank 2017). All species within *Endophragmiella* are distinguished primarily by morphological differences in conidial characteristics, such as shape, size, pigmentation, septation, and presence or absence of a rostrum at the apex (Sutton 1973, Ellis 1976, Hughes 1979, Wu & Zhuang 2005).

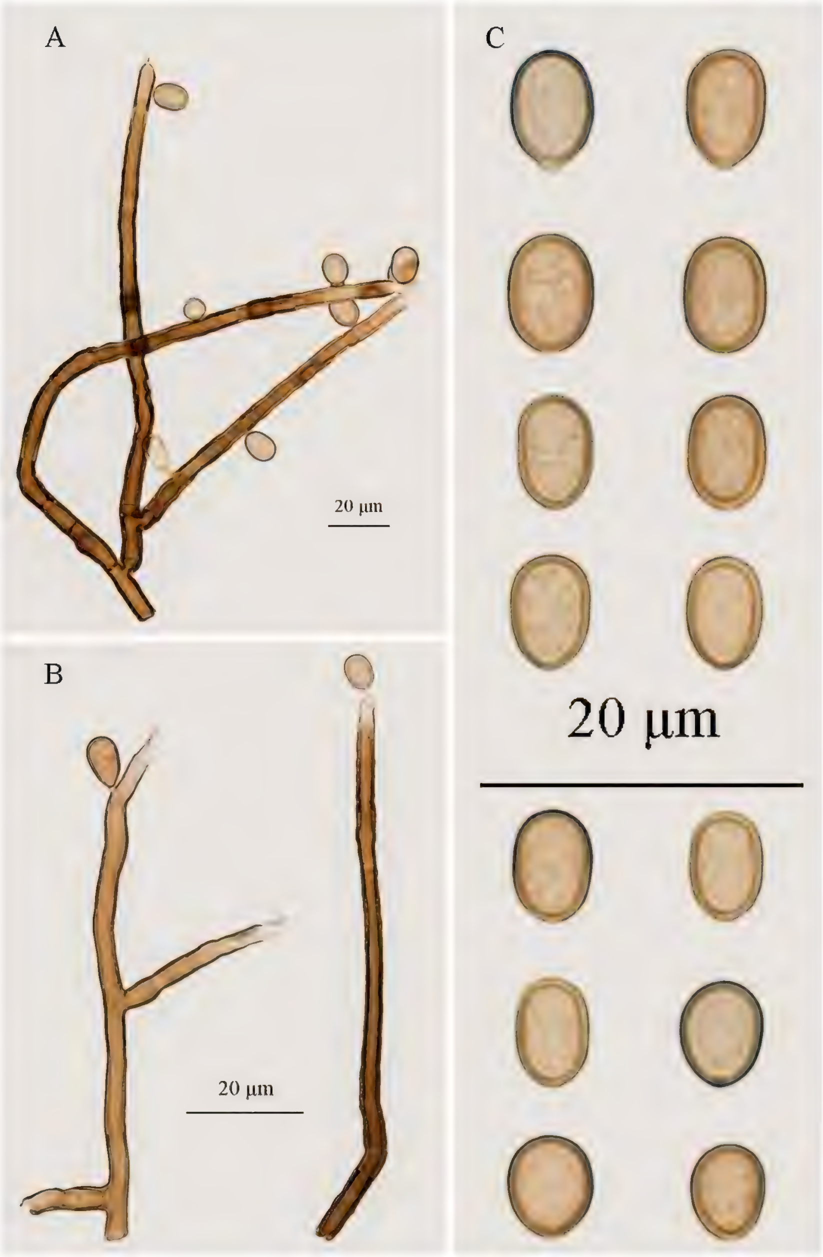

Fig. 1. *Endophragmiella jiulingensis* (holotype, HSAUP H7927). A, B. Conidiophores, conidiogenous cells, and conidia; C. Conidia.

During ongoing surveys of saprobic microfungi from forests of southern China, three interesting anamorphic species were collected from dead branches. One fungus represents an undescribed species of *Endophragmiella* B. Sutton, while the other two species are *Botryomonilia scheeleae* and *Camposporium ramosum*, both new records for China. The specimens are deposited in the Herbarium of Department of Plant Pathology, Shandong Agricultural University, Taian, Shandong, China (HSAUP) and the Mycological Herbarium, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China (HMAS).

Endophragmiella jiulingensis H.H. Li & X.G. Zhang, **sp. nov.** FIG. 1

MYCOBANK MB 823127

Differs from *Endophragmiella corticola* by its smaller, 0-septate conidia.

TYPE: China, Jiangxi Province: Jiuling Mountain, on dead stems of an unidentified broadleaf tree, 8 Nov. 2016, C.L. Yang (**Holotype**, HSAUP H7927; **isotype**, HMAS 245643).

ETYMOLOGY: in reference to the type locality.

COLONIES on the natural substrate effuse, brown. Mycelium partly superficial, partly immersed, composed of branched, septate, pale brown to brown, smooth-walled hyphae. CONIDIOPHORES macronematous, mononematous, arising terminally and laterally from mycelium, erect, straight or flexuous, irregular branched, multiseptate, smooth, pale brown to brown, 88–187 × 2.9–7 µm. CONIDIOGENOUS CELLS integrated, terminal, percurrent, cylindrical, tapering to a truncate apex, pale brown, 16–29.5 × 2–3 µm. Conidial secession rhexolytic. CONIDIA solitary, acrogenous, cylindrical, 0-septate, smooth, pale brown to brown, 6–8 × 4.5–5.5 µm.

COMMENTS—*Endophragmiella jiulingensis* is similar to *E. corticola* P.M. Kirk in having branched conidiophores, but *E corticola* differs by its larger, multiseptate conidia (16–25 × 5.5–7.5 µm, 2–3-septate; Kirk 1982).

Botryomonilia scheeleae Goos & Piroz., Canad. J. Bot. 53: 2928, 1975. FIG. 2

COLONIES on the natural substratum effuse, brown, hairy. Mycelium superficial and immersed, simple or branched, dark yellow-brown hyphae. CONIDIOPHORE stalk ≤72 µm high and with ≤30 perforated septa, mostly 7.5–12.5 µm diam. but sometimes narrowed near the base or wider towards the tip; wall thin, roughened by fine to coarse vesicular inclusions, which are distributed evenly along the entire conidiophore length or limited to (or coarser along) only a part of it. At the apex the conidiophore dichotomously

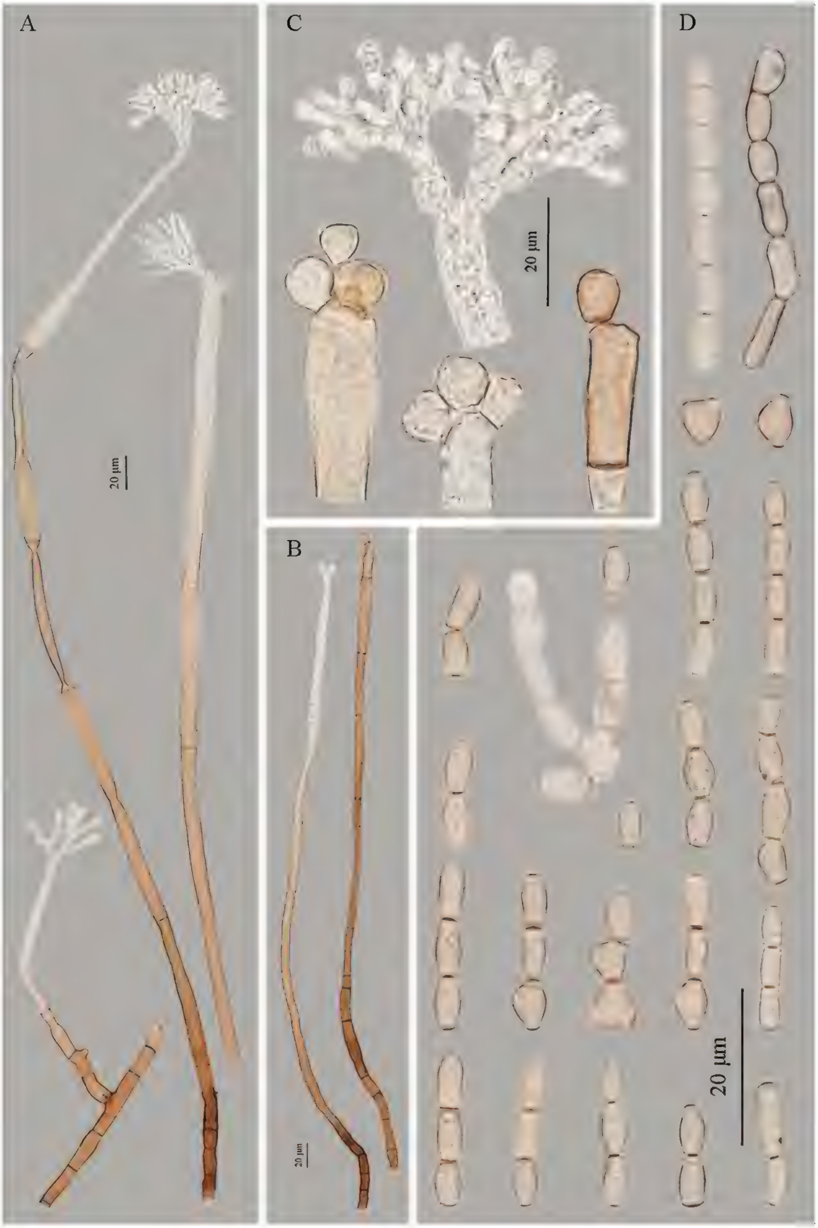

Fig. 2. *Botryomonilia scheeleae* (HSAUP H7857). A. Conidiophores, conidiogenous branches, and conidia; B. Conidiophore and conidiogenous branches; C. Conidiogenous cells and conidia; D. Conidia.

branched, producing a dendroid, penicillate head of irregular, finger-like projections. CONIDIA unicellular, hyaline (pale straw-colored when old), held together in branched chains only by a thin strand of protoplasm connecting the septal pores; the terminal conidia small (2.5–3 µm diam) and more or less hemispherical, but the lower conidia progressively enlarging (mostly to 6.5 × 6 µm, but up to 8 × 4 µm) towards the stalk and doliiform.

SPECIMEN EXAMINED: **CHINA, GUANGXI PROVINCE, Longhu Mountain**, on decaying twigs of an unidentified broadleaf tree, 7 Dec. 2015, C.L. Yang (HSAUP H7857).

COMMENTS—*Botryomonilia scheeleae* is reported for the first time from China. *Botryomonilia* is characterized by single differentiated colonies effused on black stromatic or sclerotial tissue composed of plectenchyma of dark brown hyphae. Conidiophores erect, simple or branched, resembling conidiophores of *Botrytis*, bearing a head of powdery conidia. Heads at first composed of branched, penicillate conidiogenous cells; later, these branches producing solitary or catenate conidia by thallic-arthric disarticulation, resembling *Monilia*. Conidia unicellular, doliiform, connected by protoplasmic filaments. The Chinese specimen closely matches the original description of *B. scheeleae*, except that the type material had wider conidiophores (15–20 µm; Goos & Piroz. 1975).

Camposporium ramosum Whitton, McKenzie & K.D. Hyde,
Fungal Diversity 11: 183, 2002. FIG. 3

COLONIES on natural substrate effuse, consisting of individual conidiophores scattered over the substrate surface, brown. Mycelium immersed and superficial. CONIDIOPHORES 39–87 µm long, 3.5–6 µm diam. towards the base, macronematous, mononematous, solitary, unbranched, erect, irregularly cylindrical, flexuous, dark brown towards the base, fading to pale brown towards the apex, smooth, 4–10-septate, thickened walls and septa. CONIDIOGENOUS CELLS holoblastic, polyblastic, integrated into the apical region of the conidiophores, pale brown, smooth, denticulate; cylindrical denticles acting as separating cells, 1–3 denticles per conidiophore. CONIDIA 50–55.5 µm long, 5–6.5 µm diam. at the widest point, solitary, dry, cylindrical, brown or pale brown, slightly thickened walls and septa, 7–9-septate, apex rounded; basal cell truncate, often with a persistent portion of the denticle attached; the apical cell giving rise to a single simple or branched appendage; appendage hyaline, 1–2-septate, smooth, tapering from the base to the apex, close to the base typically dividing into 3 (rarely 2) terminal branches, individual branches 11–27 µm long.

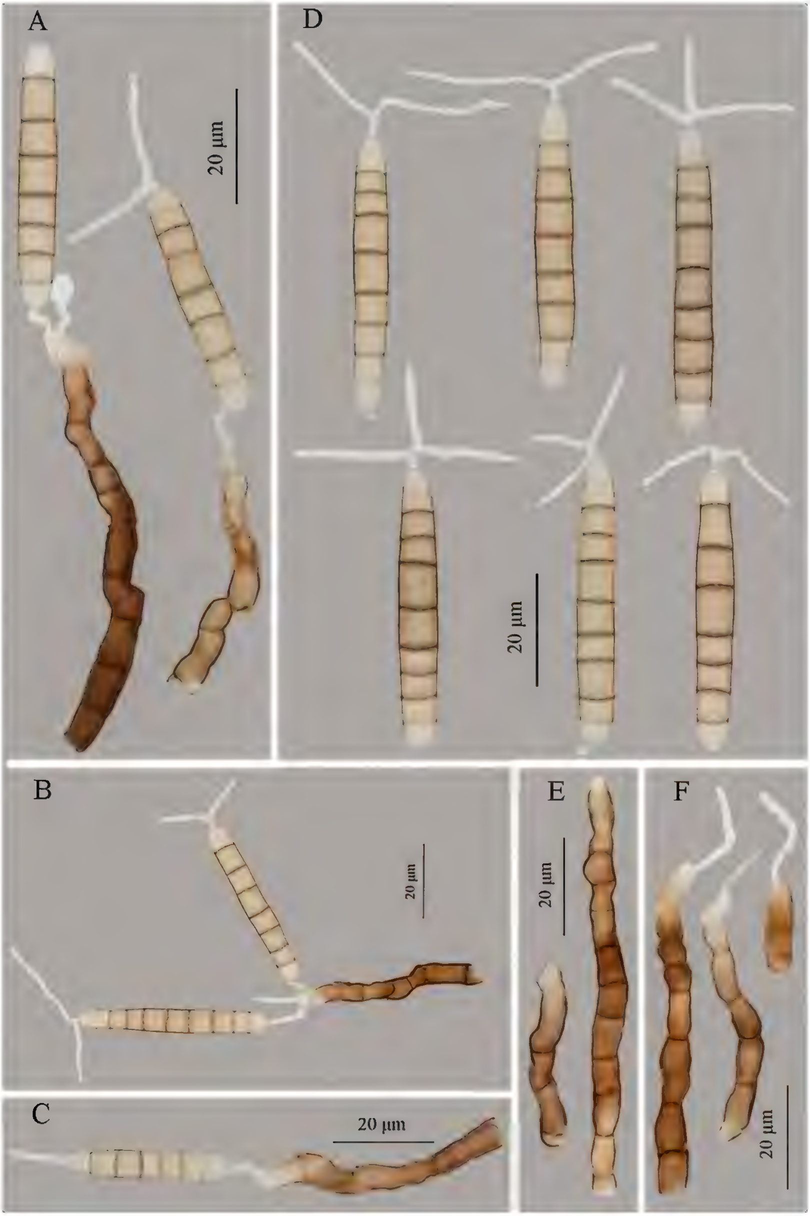

Fig. 3. *Camposporium ramosum* (HSAUP H7919). A–C. Conidiophores, conidiogenous cells, and conidia; D. Conidia; E. Conidiophore; F. Conidiophores and conidiogenous cells.

Specimen examined: **CHINA, Jiangxi Province, Jiuling Mountain**, on decaying twigs of an unidentified broadleaf tree, 2 Nov. 2016, C.L. Yang (HSAUP H7919).

Comments—*Camposporium ramosum* has been reported from Australia and USA but has not previously been recorded in China. The genus is characterized by dematiaceous, simple conidiophores that bear terminal, integrated, denticulate conidiogenous cells. The conidia are typically cylindrical and elongate multiseptate, rounded at either or both ends; the apex is either simple or has one or more cylindrical appendages, and the base typically has a persistent portion of the denticle attached. The Chinese specimen closely matched the protologue description of *C. ramosum*, except that the type specimen had bigger conidia with more septa (80–112 × 6.4–9.6 µm, 8–15-septate; Whitton et al. 2002).

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